

IN THE CLAIMS:

Claim 1-12. (previously canceled)

Claim 13. (currently amended) A coating composition for electrical conductors, comprising:

- (A) 1-60 wt.% of at least one reactive particle, said reactive particles having an average radius ranging from 1nm to 300nm, wherein said reactive particles are based on an element-oxygen network, and wherein the elements are selected from the group consisting of silicon, zinc, aluminum, tin, boron, germanium, gallium, lead, the transition metals, and lanthanides and actinides;
- (B) 0-90 wt.% of at least one conventional binder; and
- (C) 0-95 wt.% of at least one conventional additive, solvent, pigment and/or filler;

wherein the element-oxygen network of said reactive particles has at least one reactive function R_1 and optionally at least one non-reactive and/or at least one partially reactive functions R_2 and R_3 bound by way of an oxygen of the element oxygen-network to the surface of said reactive particles, the reactive function R_1 being contained in an amount up to 98 wt.% of said reactive particles and the non-reactive and/or partially reactive functions R_2 and R_3 being contained in an amount from 0-97 wt.% of said reactive particles;

wherein R_1 comprises radicals selected from the group consisting of metal acid esters, NCO, urethane groups, epoxide groups, epoxy, carboxylic acid anhydride, C=C double bond systems, OH, alcohols bound by way of oxygen, alcohols bound by way of esters, alcohols bound by way of ethers, chelating agents, COOH, NH_2 , $NHR_4[4]$, and reactive resin components;

wherein R_2 comprises radicals selected from the group consisting of aromatic compounds, aliphatic compounds, fatty acid derivatives, esters, and ethers;

wherein R_3 comprises resin radicals;

wherein R_4 comprises radicals selected from the group consisting of acrylate, phenol, melamine, polyurethane, polyester, polyester imide, polysulfide, epoxide, polyamide, polyvinyl formal resins, aromatic compounds, aliphatic compounds, esters, ethers, alcoholates, fats, and chelating agents;

wherein said reactive particles of component A require the presence of the at least one conventional binder of component B when the reactive function R_1 comprises radicals selected from the group consisting of metal acid esters, NCO, urethane groups, epoxide groups, epoxy, carboxylic acid anhydride, C=C double bond systems, OH, alcohols bound by way of oxygen, alcohols bound by way of esters, alcohols bound by way of ethers, chelating agents, COOH, NH_2 , and NHR_4 ;

whereby said coating composition is an electrically insulative coating composition; and

whereby said element-oxygen network becomes an inorganic-organic-oxygen network after the coating composition is applied and cured.

- Claim 14. (previously added) A coating composition according to claim 13, wherein the reactive function R_1 comprises radicals selected from the group consisting of $OTi(OR_4)_3$, $OZr(OR_4)_3$, acetyl acetate, 2-hydroxyethanolate, diethylene glycolate.
- Claim 15. (previously added) A coating composition according to claim 13, wherein R_3 comprises radicals selected from the group consisting of polyester imides and THEIC polyester imides.

- Claim 16. (previously added) A coating composition according to claim 13, wherein R_4 comprises radicals selected from the group consisting of acrylate resins, aminotriethanolate, acetyl acetate, polyurethane resins, and butyl diglycolate.
- Claim 17. (previously added) A coating composition according to claim 13, wherein the reactive particles of component (A) have a network of elements selected from the group consisting of titanium, aluminum, silicon, and zirconium bound to the oxygen of the element-oxygen network of said reactive particles.
- Claim 18. (previously added) A coating composition according to claim 13, wherein the reactive particles of component (A) have an average radius of 2-80 nm.
- Claim 19. (previously added) A coating composition according to claim 13, further comprising monomeric or polymeric element-organic compounds selected from the group consisting of orthotitanic acid ester, orthozirconic acid ester, titanium tetralactate, hafnium tetrabutoxide, tetraethyl silicate and silicone resins.
- Claim 20. (previously amended) A process for coating a metal conductor comprising the steps of applying the coating composition according to claim 13 and curing said coating composition at an elevated temperature.
- Claim 21. (previously added) A process according to claim 20, wherein the metal conductor is an electrically conductive wire.
- Claim 22. (previously added) A process according to claim 21, wherein the electrically conductive wire is pre-coated.
- Claim 23. (previously added) A process according to claim 20, wherein the coating composition is applied as a single-layer.

- Claim 24. (previously added) A process according to claim 20, wherein the coating composition is applied as a base coat, middle coat, and/or top coat.
- Claim 25. (previously added) A substrate coated with the composition according to claim 13.
- Claim 26. (previously added) The substrate according to claim 25, wherein said substrate is an electrical conductor.